What is claimed is :

1. A system for measuring a thickness of a circuit component on a printed circuit board (PCB), said system comprising:

a first circuit;

a power plane coupled to said first circuit;

a power strip for providing power to said power plane disposed in said PCB connected to said power plane, said power strip having at least two vias;

a calibration strip having a predetermined width and being disposed in said PCB, said calibration strip having at least two vias for measuring a voltage drop;

a temperature sensor coupled to said calibration strip and configured to measuring a temperature of said calibration strip; and

a second circuit coupled to said temperature sensor and configured to determine the thickness of said calibration strip based on at least said temperature of said calibration strip.

2. The system according to claim 1, wherein said power strip and said calibration strip comprise a same type of material.

3. The system according to claim 2, wherein said power strip and said calibration strip comprise substantially copper.

4. The system according to claim 1, wherein said second circuit is configured to calculate said thickness of said calibration strip further based upon a first voltage across said at least two vias of said power strip and a second voltage across said at least two vias of said calibration strip.

5. The system of claim 4, wherein said second circuit is coupled to said power strip and two said calibration strip, and said second circuit is further configured to measure said first voltage and said second voltage.

6. The system of claim 5, wherein calibration strip and said power strip are each of a predetermined length, and said second circuit is configured to calculate said thickness of said calibration strip further based said predetermined lengths.

7. The system according to claim 5, wherein said power strip has a first predetermined length and width, and said calibration strip has a second predetermined length and width, and said second circuit is configured to calculate said thickness of said calibration strip further based upon said first predetermined length and width and said second predetermined length and width.

8. The system according to claim 5, wherein a first power supply is connected to said power strip and a second power supply is connected to

said calibration strip, said second power supply comprising a precision current supply, and wherein said thickness is determined further based on a value of a current from said precision current supply.

9. The system according to claim 8, wherein said precision current supply comprises a precision resistor connected in series with said calibration strip.

10. The system according to claim 5, wherein said second circuit further comprises:

a first operational amplifier configured to measure said first voltage;

a second operational amplifier configured to measure said second voltage; and

an analog to digital converter receiving said first and second voltages output from said first and second operational amplifiers respectively, and said temperature from said temperature sensor.

11. The system according to claim 5, wherein said second circuit further comprises:

a differencing circuit configured to measure said first voltage and said second voltage and produce a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter configured to receive said first signal and said second signal from said differencing circuit and to convert said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit configured to receive said first and second digital signals and perform said power calculation.

12. The system according to claim 11, wherein said calculation circuit comprises a computer processor.

13. The system according to claim 5, wherein said calibration strip is disposed in a same proximity of said power strip on said PCB.

14. A system for measuring a thickness of circuit components on a printed circuit board (PCB), said system comprising:

a first circuit;

a power plane coupled said first circuit;

a power strip for providing power to said power plane disposed in said PCB connected to said power plane, said power strip having at least two vias;

a calibration strip having a predetermined width and being disposed in said PCB, said calibration strip having at least two vias for measuring a voltage drop;

a temperature regulator coupled to said PCB and configured to maintain said PCB at a set temperature; and

a second circuit configured to determine the thickness of said calibration strip based on at least said set temperature of said calibration strip.

15. The system according to claim 14, wherein said power strip and said calibration strip comprise a same type of material.

16. The system according to claim 15, wherein said power strip and said calibration strip comprise substantially copper.

17. The system according to claim 16, wherein said second circuit is configured to calculate said thickness of said calibration strip further based upon a first voltage across said at least two vias of said power strip and a second voltage across said at least two vias of said calibration strip.

18. The system of claim 17, wherein said second circuit is coupled to said power strip and two said calibration strip, and said second circuit is further configured to measure said first voltage and said second voltage.

19. The system of claim 18, wherein calibration strip and said power strip are each of a predetermined length, and said second circuit is configured

to calculate said thickness of said calibration strip further based said predetermined lengths.

20. The system according to claim 19, wherein said power strip has a first predetermined length and width, and said calibration strip has a second predetermined length and width, and said second circuit is configured to calculate said thickness of said calibration strip further based upon said first predetermined length and width and said second predetermined length and width.

21. The system according to claim 19, wherein a first power supply is connected to said power strip and a second power supply is connected to said calibration strip, said second power supply comprising a precision current supply, and wherein said thickness is determined further based on a value of a current from said precision current supply.

22. The system according to claim 21, wherein said precision current supply comprises a precision resistor connected in series with said calibration strip.

23. The system according to claim 19, wherein said second circuit further comprises:

a first operational amplifier configured to measure said first voltage;

a second operational amplifier configured to measure said second voltage; and

an analog to digital converter receiving said first and second voltages output from said first and second operational amplifiers respectively, and said temperature from said temperature sensor.

24. The system according to claim 19, wherein said second circuit further comprises:

a differencing circuit configured to measure said first voltage and said second voltage and produce a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter configured to receive said first signal and said second signal from said differencing circuit and to convert said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit configured to receive said first and second digital signals and perform said power calculation.

25. The system according to claim 24, wherein said calculation circuit comprises a computer processor.

26. The system according to claim 14, wherein said calibration strip is disposed in a same proximity of said power strip on said PCB.

27. The system according to claim 19, wherein said calibration strip is disposed in a same proximity of said power strip on said PCB. 1.

28. The system according to claim 14, wherein said temperature regulator comprises a fan and a heating element.

29. The system according to claim 19, wherein said temperature regulator comprises a fan and a heating element.

30. A method for determining a thickness of a power strip of a circuit on a printed circuit board (PCB), said method comprising the steps of:

disposing a circuit onto a PCB;

embedding a power strip having a first predetermined length and width into said PCB between a first power supply and said circuit during a manufacturing process;

disposing a calibration strip having a second predetermined length and width into said PCB during the manufacturing process;

providing a second power supply to said calibration strip and grounding said power strip to form a current flow through said power strip;

measuring a first voltage across said power strip;

measuring a second voltage across said calibration strip;

determining a temperature of said PCB; and

calculating a thickness of said power strip based on said first and second voltages, said temperature, said first predetermined length and width and said second predetermined length and width.

31. The method of claim 30 wherein the step of determining said temperature comprises measuring the temperature of said calibration strip; and

wherein said step of calculating said thickness calculates said thickness further based on said temperature of said calibration strip.

32. The method of claim 30 wherein said calibration strip is placed in close proximity to said power strip during said embedding step.

33. The method of claim 30 further comprising the step of:

disposing a calibration circuit on said PCB configured to perform said measurement and said calculation steps.

34. The method of claim 33 wherein the step of calculating said thickness further comprises steps of:

measuring and amplifying said first voltage;

measuring and amplifying said second voltage; and

converting said first and second voltages into first and second digital signals respectively.

35. The method of claim 34 wherein the step of disposing said calibration circuit further comprises steps of:

disposing a differencing circuit on said PCB configured to measure said first voltage and said second voltage;

disposing a digital to analog converter on said PCB configured to convert said first voltage and said second voltage into a first digital signal and a second digital signal; and

disposing a calculation circuit on said PCB configured to receive said first and second digital signals, and said temperature and perform said calculation.

36. A method for determining a thickness of a component of a circuit on a printed circuit board (PCB), said method comprising the steps of:

disposes a circuit onto a PCB;

embedding a power strip having a first predetermined length and width into said PCB between a first power supply during a manufacturing process;

embedding a calibration strip having a second predetermined length and width into said PCB during the manufacturing process;

providing a second power supply to said calibration strip and grounding said calibration strip so that a current flows through said calibration strip;

regulating a temperature of said PCB to be a set temperature;

measuring a first voltage across said power strip;

measuring a second voltage across said calibration strip; and

calculating said thickness of said power strip based on said first and second voltages, said set temperature, said first predetermined length and width and said second predetermined length and width.

37. The method of claim 36 wherein said step of regulating the temperature of said board comprises a step of heating said board.

38. The method of claim 37 wherein said calibration strip is placed in close proximity to said power strip during said embedding step.

39. The method of claim 36 further comprising the step of:

disposing a calibration circuit on said PCB configured to perform said measurement and said calculation steps.

40. The method of claim 39 wherein the step of calculating said thickness further comprises steps of:

measuring and amplifying said first voltage;

measuring and amplifying said second voltage; and

converting said first and second voltages into first and second digital signals respectively.

41. The method of claim 40 wherein the step of disposing a calibration circuit further comprises steps of:

disposing a differencing circuit on said PCB configured to measure said first voltage and said second voltage;

disposing a digital to analog converter on said PCB configured to convert said first voltage and said second voltage into a first digital signal and a second digital signal; and

disposing a calculation circuit on said PCB configured to receive said first and second digital signals, perform said calculation based on said first and second digital signals and said set temperature.

42. A system for measuring a thickness of a circuit component on a printed circuit board (PCB), said system comprising:

a first circuit means;

a power plane means for providing power to said first circuit means;

a power strip means for providing power to said power plane means disposed in said PCB, said power strip means having at least two vias;

a calibration strip means having a predetermined width and being disposed in said PCB, said calibration strip means having at least two vias for measuring a voltage drop;

a temperature sensor means for measuring a temperature of said calibration strip means; and

a second circuit means for determining the thickness of said calibration strip means based on at least said temperature of said calibration strip means.

43. The system according to claim 42, wherein said power strip means and said calibration strip means comprise a same type of material.

44. The system according to claim 43, wherein said power strip means and said calibration strip means comprise substantially copper.

45. The system according to claim 42, wherein said second circuit means is configured to calculate said thickness of said calibration strip means further based upon a first voltage across said at least two vias of said power strip means and a second voltage across said at least two vias of said calibration strip means.

46. The system of claim 45, wherein said second circuit means is further configured to measure said first voltage and said second voltage.

47. The system of claim 46, wherein calibration strip means and said power strip means are each of a predetermined length, and said second circuit means is configured to calculate said thickness of said calibration strip means further based said predetermined lengths.

48. The system according to claim 46, wherein said power strip means has a first predetermined length and width, and said calibration strip means has a second predetermined length and width, and said second circuit means is configured to calculate said thickness of said calibration strip means further based upon said first predetermined length and width and said second predetermined length and width.

49. The system according to claim 46 further comprising:

a first power supply means for supplying power to said power strip means; and

a second power supply means for supplying a precision current supply to said calibration strip means,;

wherein said thickness is determined further based on a value of a current from said second power supply means.

50. The system according to claim 49, wherein said second power supply means comprises a precision resistor means connected in series with said calibration strip means.

51. The system according to claim 46, wherein said second circuit means further comprises:

a first operational amplifier means for measuring said first voltage;

a second operational amplifier means for measuring said second voltage; and

an analog to digital converter means for receiving said first and second voltages output from said first and second operational amplifiers means respectively, and said temperature from said temperature sensor means.

52. The system according to claim 46, wherein said second circuit means further comprises:

a differencing circuit means for measuring said first voltage and said second voltage and producing a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter means for converting said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit means for receiving said first and second digital signals and performing said power calculation.

53. The system according to claim 52, wherein said calculation circuit means comprises a computer processor means.

54. The system according to claim 46, wherein said calibration strip means is disposed in a same proximity of said power strip means on said PCB.

55. A system for measuring a thickness of circuit components on a printed circuit board (PCB), said system comprising:

a first circuit means;

a power plane means for providing power to said first circuit means;

a power strip means for providing power to said power plane means disposed in said PCB, said power strip means having at least two vias;

a calibration strip means having a predetermined width and being disposed in said PCB, said calibration strip means having at least two vias for measuring a voltage drop;

a temperature regulator means for maintaining said PCB at a set temperature; and

a second circuit means for determining the thickness of said calibration strip means based on at least said set temperature of said calibration strip means.

56. The system according to claim 55, wherein said power strip means and said calibration strip means comprise a same type of material.

57. The system according to claim 55, wherein said power strip means and said calibration strip means comprise substantially copper.

58. The system according to claim 57, wherein said second circuit means is configured to calculate said thickness of said calibration strip means further based upon a first voltage across said at least two vias of said power strip means and a second voltage across said at least two vias of said calibration strip means.

59. The system of claim 58, wherein said second circuit means is further configured to measure said first voltage and said second voltage.

60. The system of claim 59, wherein calibration strip and said power strip means are each of a predetermined length, and said second circuit means is configured to calculate said thickness of said calibration strip means further based said predetermined lengths.

61. The system according to claim 60, wherein said power strip means has a first predetermined length and width, and said calibration strip means has a second predetermined length and width, and said second circuit means is configured to calculate said thickness of said calibration strip means further based upon said first predetermined length and width and said second predetermined length and width.

62. The system according to claim 60, further comprising:

a first power supply means for supplying power to said power strip means; and

a second power supply means for supply a precision current supply to said calibration strip means;

wherein said thickness is determined further based on a value of a current from said second power supply means.

63. The system according to claim 62, wherein said pr second power supply means comprises a precision resistor means connected in series with said calibration strip means.

64. The system according to claim 60, wherein said second circuit further comprises:

a first operational amplifier means for measuring said first voltage;

a second operational amplifier means for measuring said second voltage; and

an analog to digital converter means for receiving said first and second voltages output from said first and second operational amplifier means respectively, and said set temperature.

65. The system according to claim 60, wherein said second circuit further comprises:

a differencing circuit means for measuring said first voltage and said second voltage and producing a first signal and a second signal corresponding to said first voltage and said second voltage respectively;

a digital to analog converter means for receiving said first signal and said second signal from said differencing circuit and converting said first signal and said second signal into a first digital signal and a second digital signal; and

a calculation circuit means for receiving said first and second digital signals and performing said power calculation.

66. The system according to claim 65, wherein said calculation circuit means comprises a computer processor means.

67. The system according to claim 55, wherein said calibration strip means is disposed in a same proximity of said power strip means on said PCB.

68. The system according to claim 60, wherein said calibration strip means is disposed in a same proximity of said power strip means on said PCB. 1.

69. The system according to claim 55, wherein said temperature regulator means comprises a fan and a heating element.

70. The system according to claim 60, wherein said temperature regulator means comprises a fan and a heating element.